

Making the Business Case for Smoking Cessation Programs

“Smoking cessation is the gold standard of health care cost effectiveness.”
—David Eddy, 1992¹

What is the business case for smoking cessation?

The business case for smoking cessation involves demonstrating the short-term financial value of evidence-based interventions to health insurance plans, payors, employers, and other tobacco control stakeholders.

The costs of smoking and cost-effectiveness of quitting are well known.²⁻⁵ However, financial barriers remain that limit the availability and promotion of cessation services. Health insurance plans, payors, and employers want evidence that interventions can reduce medical care expenditures and productivity costs for quitters in the short-run.⁶⁻⁸

Businesses use ROI analysis to allocate resources by comparing the implementation costs and future revenues (or savings) of alternative investments. To make the business case for smoking cessation, interventions must demonstrate a positive ROI in 3-5 years compared to existing practice.

Calculating return on investment (ROI)

AHIP and the Center for Health Research, Kaiser Permanente Northwest (CHR) have developed a business case for smoking cessation by estimating the incremental ROI of evidence-based cessation interventions. Extensive original research culminated in the creation of a user-friendly, web-based ROI Calculator that estimates the impact of smoking cessation interventions for 1-5 years.

Our findings demonstrate that investments in smoking cessation save money in the short term (2 years). This study validates that evidence-based programs can improve the health of smokers who quit and economically benefit health insurance plans and employers.

The original research

CHR researchers estimated the incremental ROI of four interventions compared to usual care (ask and advice). Based on the US Public Health Service Treating Tobacco Use and Dependence⁹ clinical practice guideline, the tested interventions were:

- the “5 A’s”—Ask, Advise, Assess, Assist, Arrange
- 5 A’s plus nicotine replacement therapy (NRT)
- 5 A’s plus proactive telephone counseling
- 5 A’s plus both NRT and telephone counseling

The analysis used published data on reach, efficacy, and cost to estimate the incremental ROI of a one-year program, compared to usual care (2 A’s). The smoking, health, and eligibility status of continuing smokers and new quitters were projected annually over five years, and annual medical expenditures and productivity losses were assessed.

CHR researchers estimated the following annual probabilities by smoking intensity, age, and sex (controlling for income):

- a smoking-related disease diagnosis
- quitting and relapse given disease status
- disenrollment given disease and smoking status

The probability data were estimated using electronic medical record (EMR) data for 200,000 eligible Kaiser Permanente Northwest members during 1997-2002. KPNW is a large HMO (440,000 members) serving about 20% of the Portland, OR-Vancouver, WA population. Mean annual medical care expenditures were estimated for each group with similar disease, smoking, and eligibility enrollment patterns using data from 62,000 members. Productivity savings were estimated using published data.^{10,11} All costs were translated into 2002 dollars and adjusted to present value terms.

The KPNW EMR captures smoking status and evaluation dates for over 90% of adults, and status is regularly recorded at routine care and many other types of visits. The model could therefore account for the temporal relationships between disease, smoking, and plan eligibility, and could better predict medical expenditures of healthy quitters.^{7,12,13}

CHR researchers found that health plans investing \$35-\$410 per participant in a one-year program generated a positive ROI within 3 years. For the test health plan population, ROI per cessation service recipient for the plan was \$750-\$1,120 after 5 years (Table 1). For employers, ROI was positive in all years, and totaled \$100-\$200 after 5 years. The results indicate investments of \$.18-\$.79 PMPM generate positive net ROI of over \$1.70-\$2.20 after five years.

| Year | 5As | 5As+Rx | 5As+QL | 5As+both |
|------|---------|---------|---------|----------|
| 1 | \$(71) | \$(306) | \$(226) | \$(414) |
| 2 | \$422 | \$147 | \$261 | \$35 |
| 3 | \$769 | \$489 | \$607 | \$376 |
| 4 | \$1,029 | \$756 | \$868 | \$643 |
| 5 | \$1,122 | \$858 | \$963 | \$747 |

*Per intervention participant compared to 2As program (usual care).
All costs in 2002 dollars and discounted to the present value.

| Year | 5As | 5As+Rx | 5As+QL | 5As+both |
|------|-------|--------|--------|----------|
| 1 | \$13 | \$27 | \$19 | \$32 |
| 2 | \$43 | \$79 | \$53 | \$87 |
| 3 | \$68 | \$122 | \$81 | \$133 |
| 4 | \$88 | \$156 | \$103 | \$169 |
| 5 | \$103 | \$183 | \$110 | \$197 |

*Per intervention participant compared to 2As program (usual care).
All costs in 2002 dollars and discounted to the present value.

ROI estimates were also calculated using data from a range of other health insurance plans. While the ROI estimates varied somewhat depending on local variations in regional health care costs, smoking prevalence, and disease rates, the results were still positive.

The web-based ROI Calculator (www.businesscaseroi.org)

AHIP and CHR translated the original simulation model into the user-friendly web-based ROI Calculator. The ROI Calculator contains the data and functional relationships of the original simulation model, but with a simplified user-friendly interface.

Like the original model, the ROI Calculator estimates the number of participants, new quitters, and program costs for interventions lasting one year. For each intervention, the new distribution of smokers and new quitters are run through the model. The model estimates annual disease incidence, quitting and relapse, eligibility, and costs. ROI for each intervention is calculated by comparing the differences in net costs with data for usual care.

The ROI Calculator and YOU

The ROI Calculator is designed to help you quickly assess the potential benefits of common smoking cessation interventions. The preloaded data can be easily modified to reflect the key smoking and environmental factors of your current health plan's population. You can also vary key inputs. The results of your ROI analyses should help your organization evaluate the cost-effectiveness of various tobacco cessation interventions.

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